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APR 11 2005
PATENT & TRADEMARK OFFICE

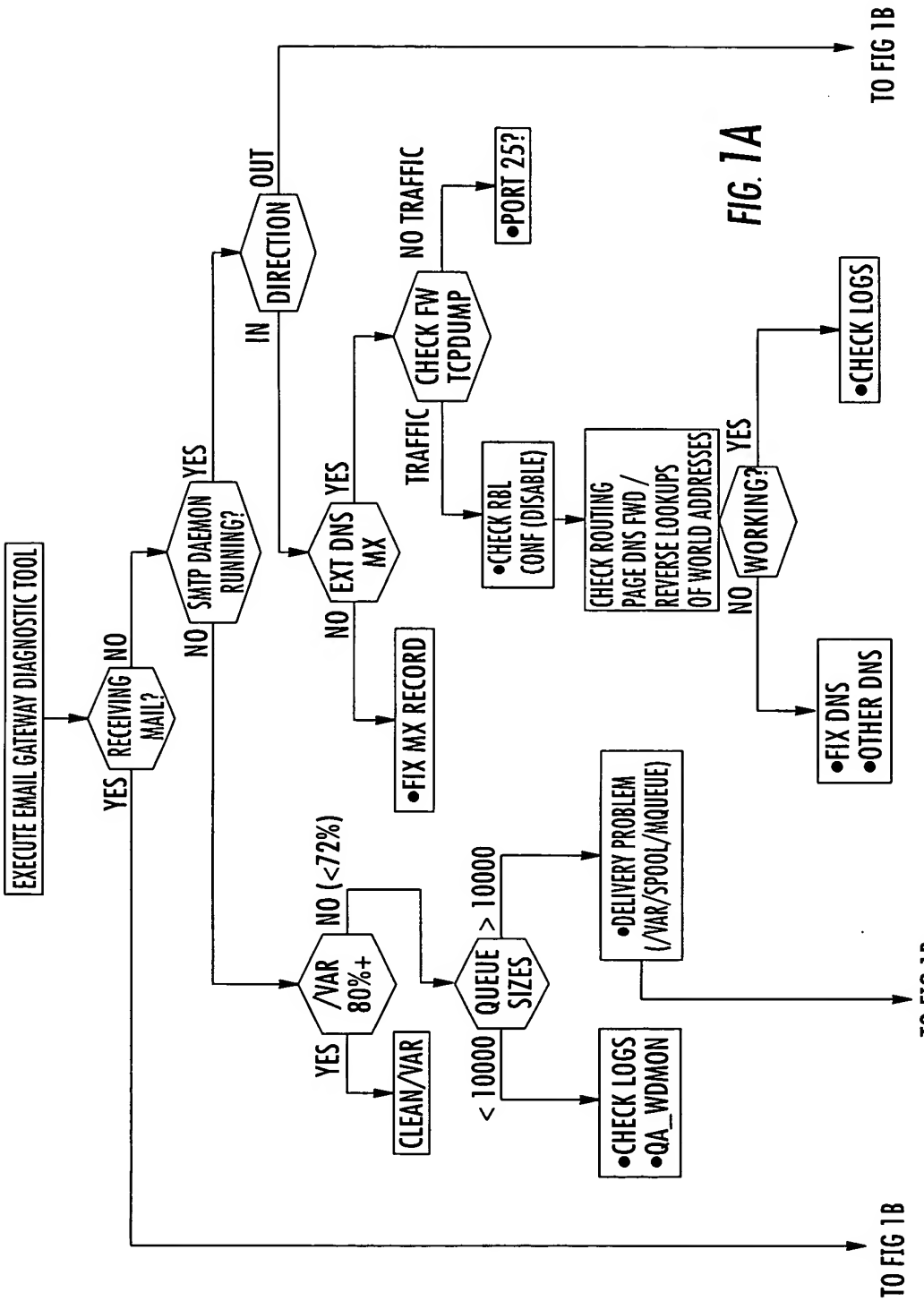

FIG. 1A

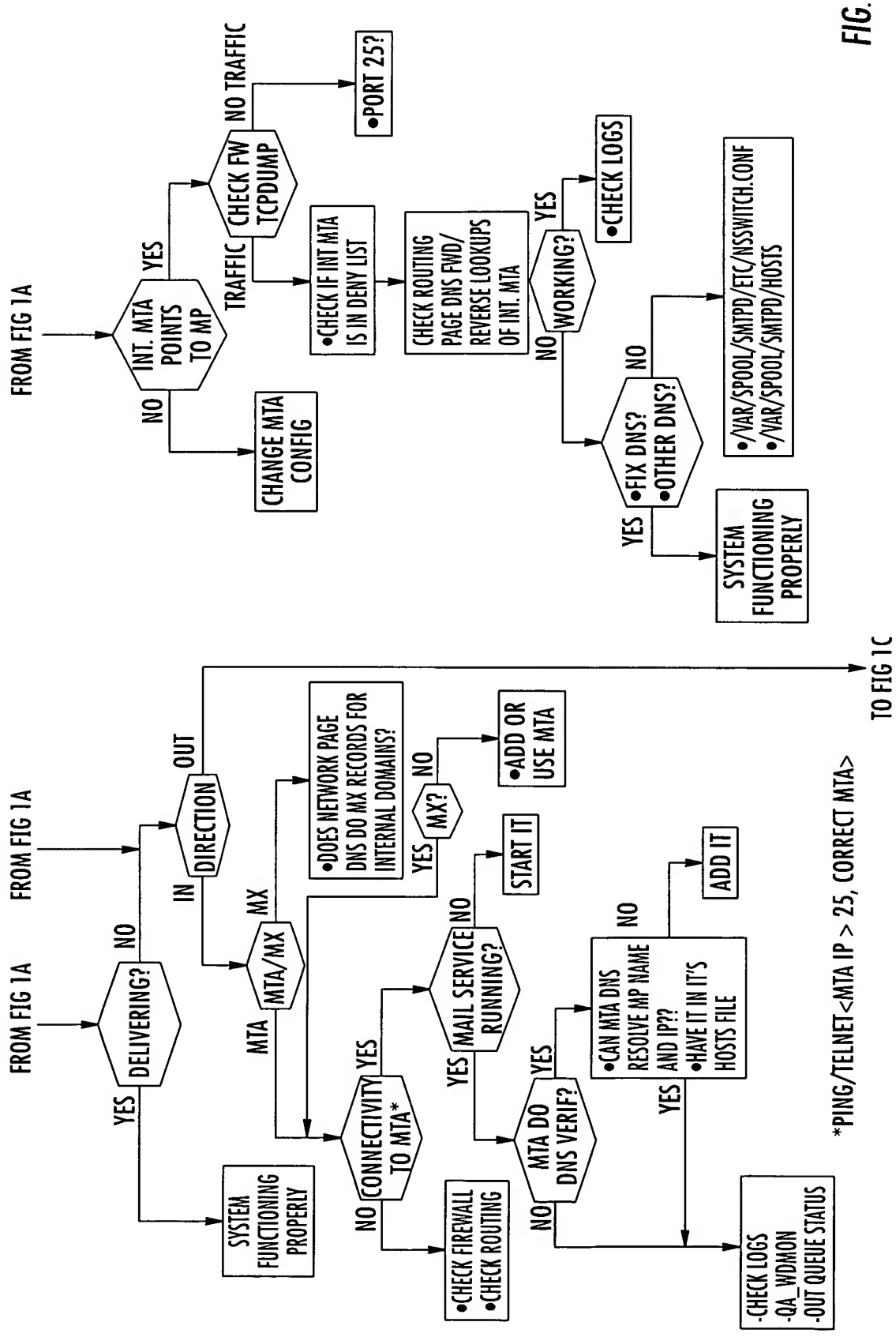
FROM FIG 1A
DELIVERING?
NO
YES
SYSTEM FUNCTIONING PROPERLY
FROM FIG 1A
DIRECTION
IN
OUT
TO FIG 1C
MTA/MX
MTA
MX
•DOES NETWORK PAGE DNS DO MX RECORDS FOR INTERNAL DOMAINS?
MX?
YES
NO
•ADD OR USE MTA
CONNECTIVITY TO MTA*
YES
NO
•CHECK FIREWALL
•CHECK ROUTING
MAIL SERVICE RUNNING?
YES
NO
START IT
MTA DO DNS VERIF?
YES
NO
•CAN MTA DNS RESOLVE MP NAME AND IP??
•HAVE IT IN IT'S HOSTS FILE
YES
NO
ADD IT
-CHECK LOGS
-QA_WDMON
-OUT QUEUE STATUS
*PING/TELNET<MTA IP > 25, CORRECT MTA>
FROM FIG 1A
INT. MTA POINTS TO MP
YES
NO
CHANGE MTA CONFIG
TRAFFIC
CHECK FW TCPDUMP
NO TRAFFIC
•PORT 25?
•CHECK IF INT MTA IS IN DENY LIST
CHECK ROUTING PAGE DNS FWD/ REVERSE LOOKUPS OF INT. MTA
WORKING?
YES
NO
•CHECK LOGS
FIX DNS?
•OTHER DNS?
YES
NO
SYSTEM FUNCTIONING PROPERLY
•/VAR/SPOOL/SMTPD/ETC/NSSWITCH.CONF
•/VAR/SPOOL/SMTPD/HOSTS

FIG. 1B

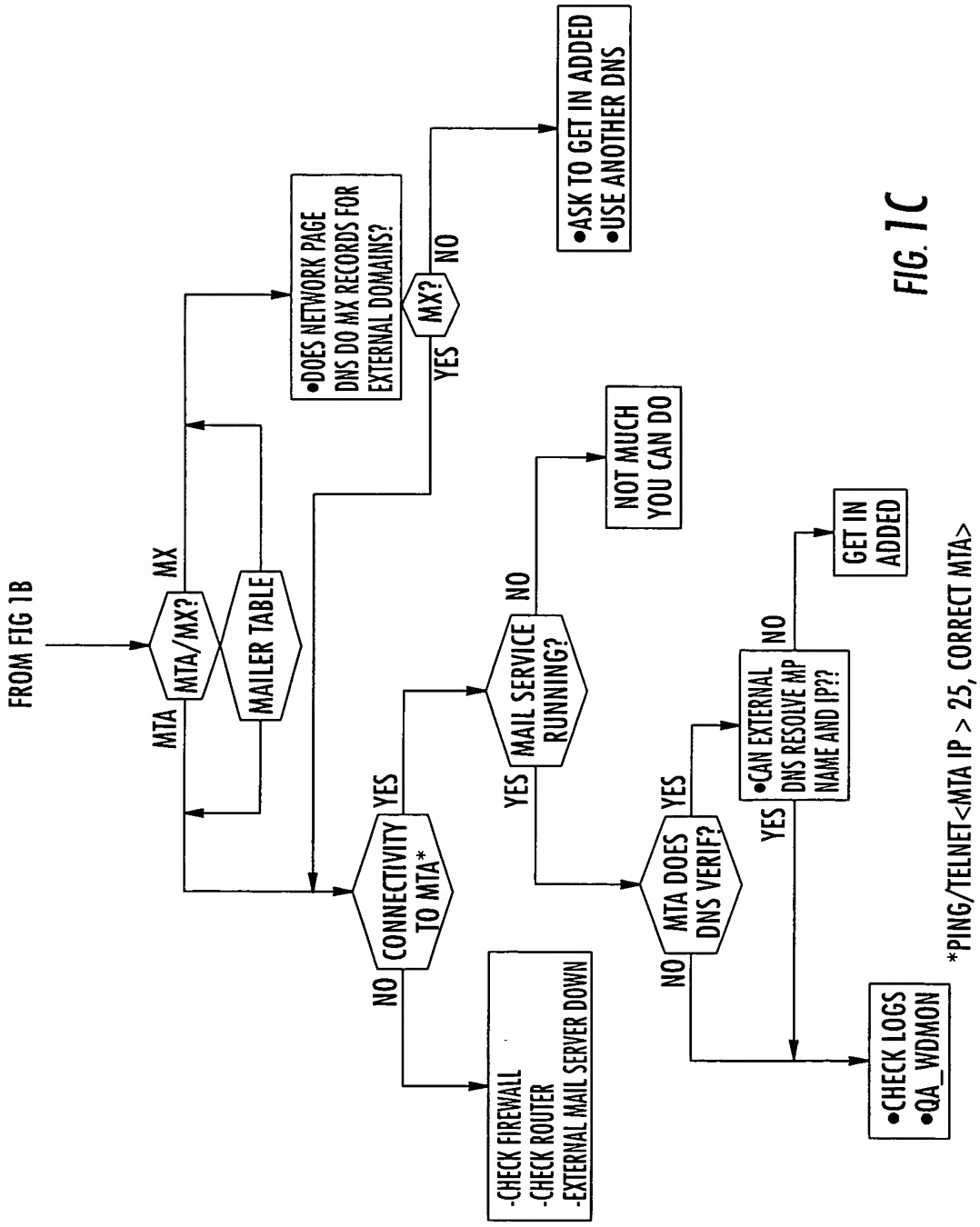
FROM FIG 1B
MTA/MX?
MX
MTA
MAILER TABLE
•DOES NETWORK PAGE DNS DO MX RECORDS FOR EXTERNAL DOMAINS?
MX?
NO
YES
•ASK TO GET IN ADDED
•USE ANOTHER DNS
CONNECTIVITY TO MTA*
YES
NO
-CHECK FIREWALL
-CHECK ROUTER
-EXTERNAL MAIL SERVER DOWN
MAIL SERVICE RUNNING?
NO
YES
NOT MUCH YOU CAN DO
MTA DOES DNS VERIF?
YES
NO
•CAN EXTERNAL DNS RESOLVE MP NAME AND IP??
NO
YES
GET IN ADDED
•CHECK LOGS
•QA_WDMON
*PING/TELNET<MTA IP > 25, CORRECT MTA>

FIG. 1C

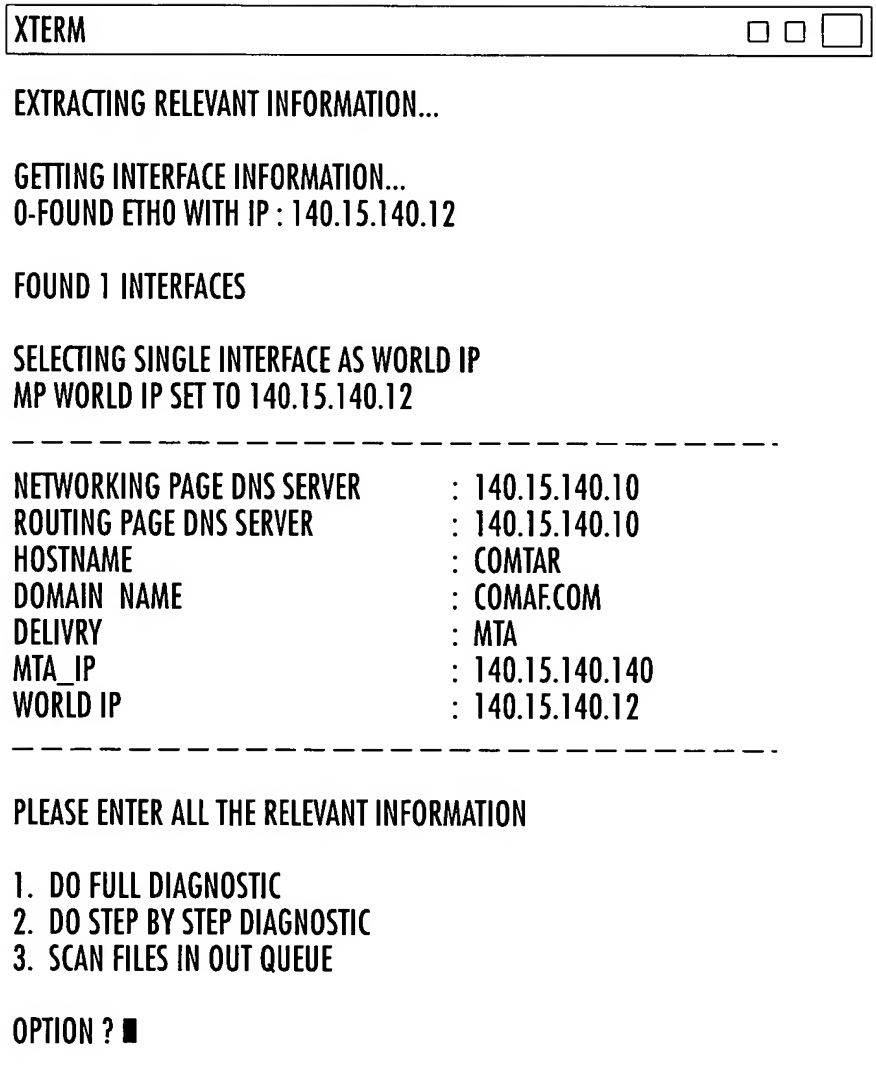
XTERM
EXTRACTING RELEVANT INFORMATION...
GETTING INTERFACE INFORMATION...
0-FOUND ETH0 WITH IP : 140.15.140.12
FOUND 1 INTERFACES
SELECTING SINGLE INTERFACE AS WORLD IP
MP WORLD IP SET TO 140.15.140.12
NETWORKING PAGE DNS SERVER : 140.15.140.10
ROUTING PAGE DNS SERVER : 140.15.140.10
HOSTNAME : COMTAR
DOMAIN NAME : COMAF.COM
DELIVRY : MTA
MTA_IP : 140.15.140.140
WORLD IP : 140.15.140.12
PLEASE ENTER ALL THE RELEVANT INFORMATION
1. DO FULL DIAGNOSTIC
2. DO STEP BY STEP DIAGNOSTIC
3. SCAN FILES IN OUT QUEUE
OPTION ?

FIG. 2

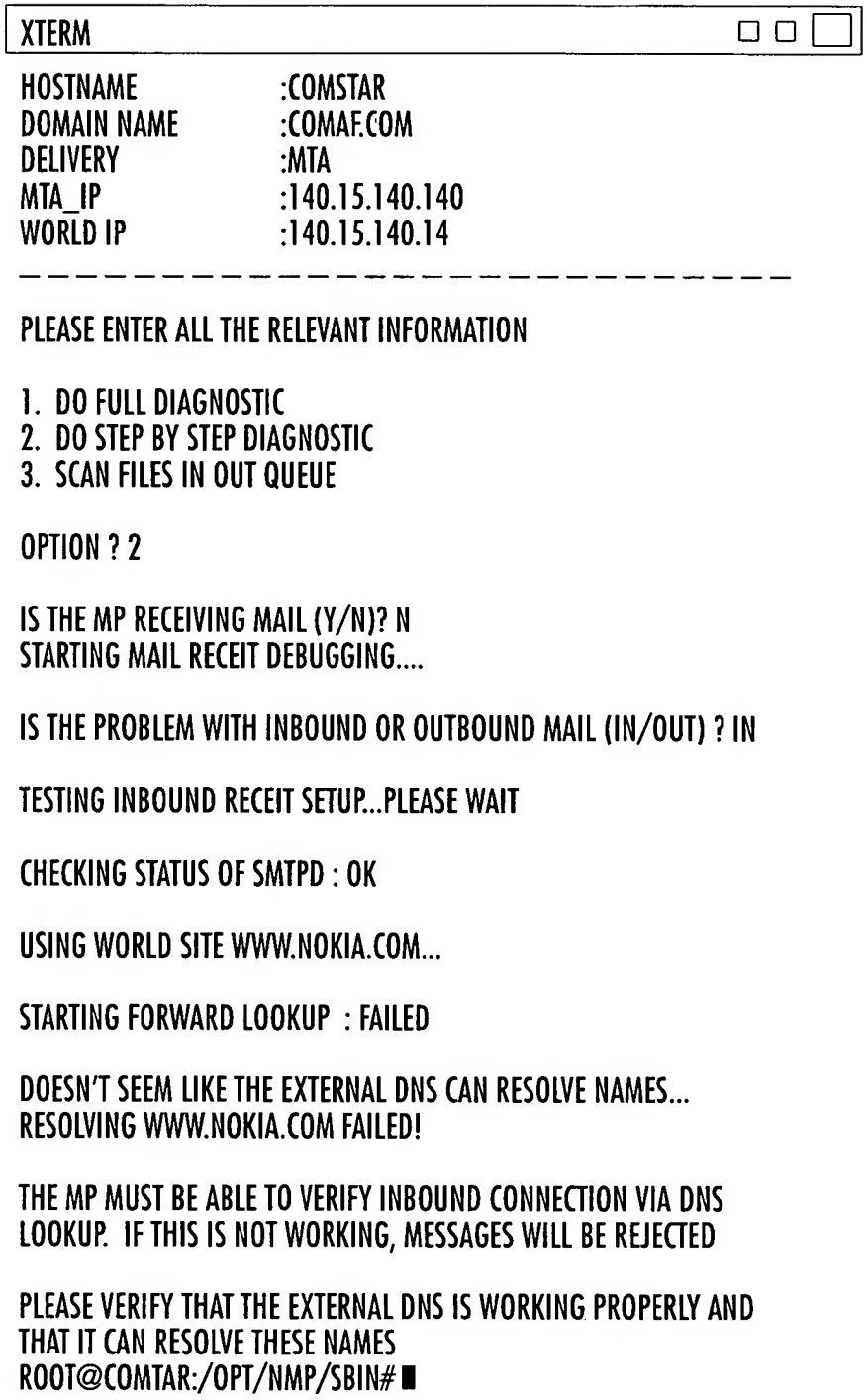
XTERM
HOSTNAME :COMSTAR
DOMAIN NAME :COMAF.COM
DELIVERY :MTA
MTA_IP :140.15.140.140
WORLD IP :140.15.140.14
PLEASE ENTER ALL THE RELEVANT INFORMATION
1. DO FULL DIAGNOSTIC
2. DO STEP BY STEP DIAGNOSTIC
3. SCAN FILES IN OUT QUEUE
OPTION ? 2
IS THE MP RECEIVING MAIL (Y/N)? N
STARTING MAIL RECEIT DEBUGGING....
IS THE PROBLEM WITH INBOUND OR OUTBOUND MAIL (IN/OUT) ? IN
TESTING INBOUND RECEIT SETUP...PLEASE WAIT
CHECKING STATUS OF SMTPD : OK
USING WORLD SITE WWW.NOKIA.COM...
STARTING FORWARD LOOKUP : FAILED
DOESN'T SEEM LIKE THE EXTERNAL DNS CAN RESOLVE NAMES...
RESOLVING WWW.NOKIA.COM FAILED!
THE MP MUST BE ABLE TO VERIFY INBOUND CONNECTION VIA DNS
LOOKUP. IF THIS IS NOT WORKING, MESSAGES WILL BE REJECTED
PLEASE VERIFY THAT THE EXTERNAL DNS IS WORKING PROPERLY AND
THAT IT CAN RESOLVE THESE NAMES
ROOT@COMTAR:/OPT/NMP/SBIN#

FIG. 3

XTERM

```
PLEASE ENTER ALL THE RELEVANT INFORMATION

1.DO FULL DIAGNOSTIC
2. DO STEP BY STEP DIAGNOSTICE
3. SCAN FILES IN OUT QUEUE

OPTION ? 2

IS THE MP RECEIVING MAIL (Y/N)? N
STARTING MAIL RECEIT DEBUGGING ....

IS THE PROBLEM WITH INBOUND OR OUTBOUND MAIL (IN/OUT) ? OUT

TESTING OUTBOUND RECEIT SETUP ...
CHECKING STATUS OF SMTPD     : OK

PLEASE ENTER THE INTERNAL MAIL SERVER INFORMATION :
FULLY QUALIFIED DOMAIN NAME      : BEASTY.COMAF.COM
IP ADDRESS                       : 140.15.140.140

STARTING FORWARD LOOKUP    : OK
STARTING REVERSE LOOKUP    : OK
FORWARD AND REVERS LOOKUP SUCCESS ...

VERIFYING NAME MATCHES     : OK

DNS VERIFICATION IS WORKING PROPERLY ...

IF YOU STILL HAVE PROBLEMS, PLEASE LOOK INTO THE FOLLOWING
1. MAKE SURE THE SENDING MAIL CLIENT IS NOT IN THE DENY LIST
   ON THE MESSAGE REFUSAL PAGE
2. IF YOU HAVE RBL / RSS CHECKING ENABLED, DISABLE AND TRY AGAIN
3. CHECK YOUR FIREWALL CINFIGURATION
ROOT@COMTAR:/OPT/NMP/SBIN# ■
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FIG. 4

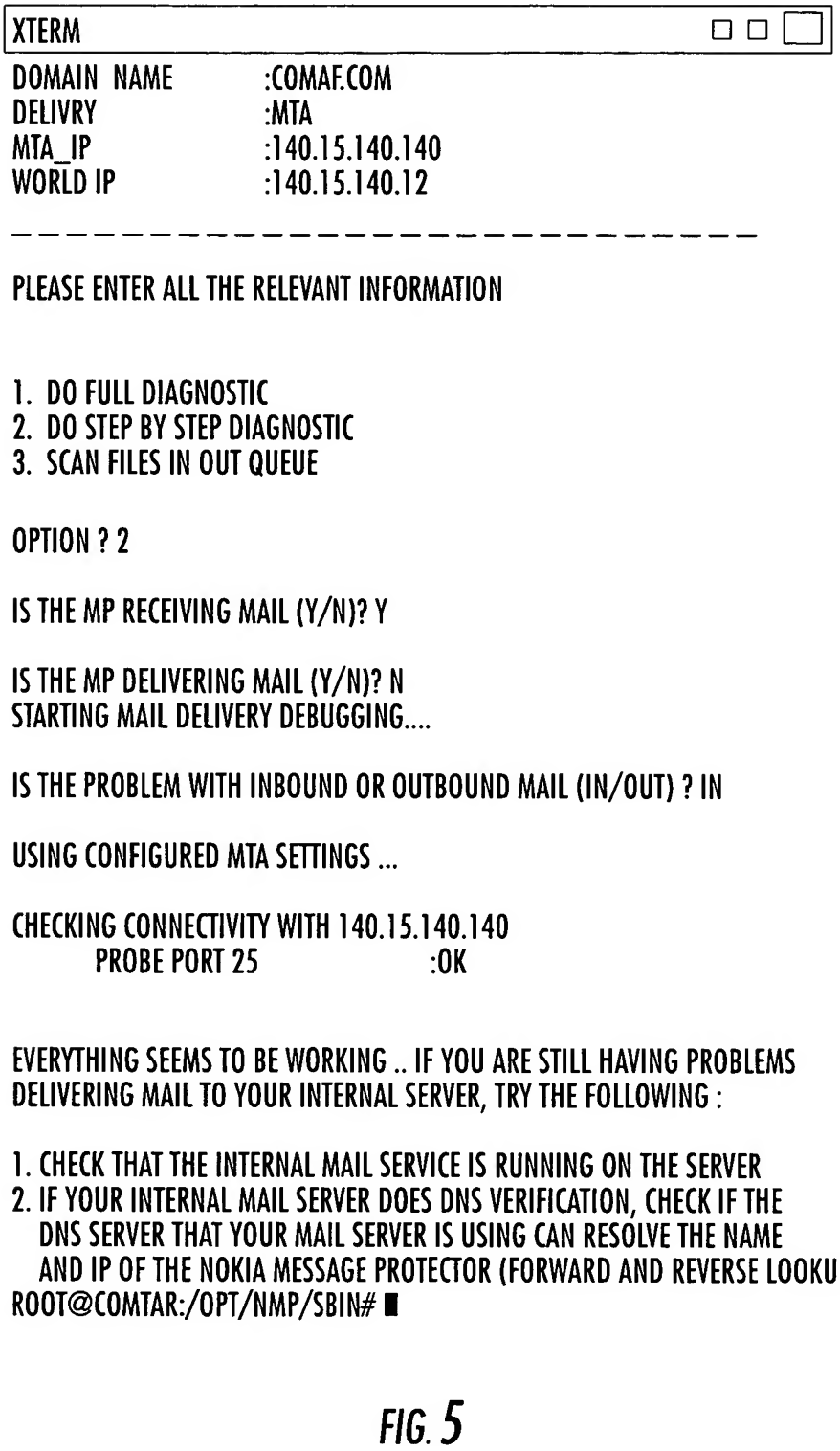
XTERM
DOMAIN NAME :COMAF.COM
DELIVRY :MTA
MTA_IP :140.15.140.140
WORLD IP :140.15.140.12
PLEASE ENTER ALL THE RELEVANT INFORMATION
1. DO FULL DIAGNOSTIC
2. DO STEP BY STEP DIAGNOSTIC
3. SCAN FILES IN OUT QUEUE
OPTION ? 2
IS THE MP RECEIVING MAIL (Y/N)? Y
IS THE MP DELIVERING MAIL (Y/N)? N
STARTING MAIL DELIVERY DEBUGGING....
IS THE PROBLEM WITH INBOUND OR OUTBOUND MAIL (IN/OUT) ? IN
USING CONFIGURED MTA SETTINGS ...
CHECKING CONNECTIVITY WITH 140.15.140.140
PROBE PORT 25 :OK
EVERYTHING SEEMS TO BE WORKING .. IF YOU ARE STILL HAVING PROBLEMS
DELIVERING MAIL TO YOUR INTERNAL SERVER, TRY THE FOLLOWING :
1. CHECK THAT THE INTERNAL MAIL SERVICE IS RUNNING ON THE SERVER
2. IF YOUR INTERNAL MAIL SERVER DOES DNS VERIFICATION, CHECK IF THE
DNS SERVER THAT YOUR MAIL SERVER IS USING CAN RESOLVE THE NAME
AND IP OF THE NOKIA MESSAGE PROTECTOR (FORWARD AND REVERSE LOOKUP)
ROOT@COMTAR:/OPT/NMP/SBIN#

FIG. 5

XTERM

```
OPTION ? 2

IS THE MP RECEIVING MAIL (Y/N)? Y

IS THE MP DELIVERING MAIL (Y/N)? N
STARTING MAIL DELIVERY DEBUGGING....

IS THE PROBLEM WITH INBOUND OR OUTBOUND MAIL (IN/OUT) ? OUT

YOU HAVE MX RECORDS SELECTED FOR DELIVERY...

PLEASE ENTER THE DOMAIN YOU ARE SENDING MAIL TO IE. YAHOO.COM : YAHOO.COM

CHECKING MX RECORDS : OK
VERIFYING MX ENTRIES....
DOING LOOKUP FOR MX2.MAIL.YAHOO.COM. :
        IP = 64.157.4.78            : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 64.157.4.82            : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 64.156.215.5           : OK
        PROBE PORT 25               : CONNECTION REFUSED

DOING LOOKUP FOR MX4.MAIL.YAHOO.COM. :
        IP = 66.218.86.253          : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 216.136.129.17         : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 216.136.129.5          : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 66.218.86.254          : OK
        PROBE PORT 25               : CONNECTION REFUSED

DOING LOOKUP FOR MX1.MAIL.YAHOO.COM. :
        IP = 64.156.215.5           : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 64.156.215.6           : OK
        PROBE PORT 25               : CONNECTION REFUSED

        IP = 64.157.4.78            : OK
        PROBE PORT 25               : CONNECTION REFUSED

ONE OR MORE OF THE SERVERS COULD NOT BE PROBED ON PORT 25.

MESSAGE PROTECTOR CAN'T REACH THE SERVER(S), AND THIS WILL CAUSE
MAIL DELIVERY TO FAIL TO THE DOMAIN YAHOO.COM
ROOT@REAR:/OPT/NMP/SBIN#
```

FIG. 6

XTERM

```
HOSTNAME          : MAIL
DOMAIN  NAME      : MAILMAIL.NOKIA.COM
DELIVRY           : MX
MTA  IP           :
WORLD IP          : 133.13.133.33
-------------------------------------

PLEASE ENTER ALL THE RELEVANT INFORMATION

1. DO FULL DIAGNOSTIC
2. DO STEP BY STEP DIAGNOSTIC
3. SCAN FILES IN OUT QUEUE
OPTION ? 2

IS THE MP RECEIVING MAIL (Y/N)? Y

IS THE MP DELIVERING MAIL (Y/N)? N
STARTING MAIL DELIVERY DEBUGGING....

IS THE PROBLEM WITH INBOUND OR OUTBOUND MAIL (IN/OUT) ? OUT

YOU HAVE MX RECORDS SELECTED FOR DELIVERY...

PLEASE ENTER THE DOMAIN YOU ARE SENDING MAIL TO IE. YAHOO.COM : NOKIA.COM

CHECKING MX RECORDS              : OK
VERIFYING MX ENTRIES....
DOING LOOKUP FOR MAILH002.DEL.NOKIA.COM. :
        IP = 172.21.138.77       : OK
        PROBE PORT 25            : OK

DOING LOOKUP FOR MAILH003.DEL.NOKIA.COM. :
        IP = 172.21.138.82       : OK
        PROBE PORT 25            : OK

DOING LOOKUP FOR MAILH001.DEL.NOKIA.COM. :
        IP = 172.21.138.28       : OK
        PROBE PORT 25            : OK

CHECKING FORWARD AND REVERSE DNS ENTRIES FOR THE MP

USING EXTERNAL DNS SERVER 131.131.3.131 ...
STARTING FORWARD LOOKUP          : OK
STARTING REVERSE LOOKUP          : OK

EVERYTHING SEEMS TO BE WORKING .. IF YOU ARE STILL HAVING PROBLEMS
DELIVERING MAIL TO THE EXTERNAL MTA SERVER, TRY THE FOLLOWING :

1. IF YOU SUSPECT THE EXTERNAL MAIL SERVER DOES DNS VERIFICATION,
   CHECK IF THE EXTERNAL DNS SERVER FOR YOUR DOMAIN CAN RESOLVE THE NAME
   AND IP OF THE NOKIA MESSAGE PROTECTOR (FORWARD AND REVERSE LOOKUP)
ROOT@MAIN:/OPT/NMP/SBIN#
```

FIG. 7

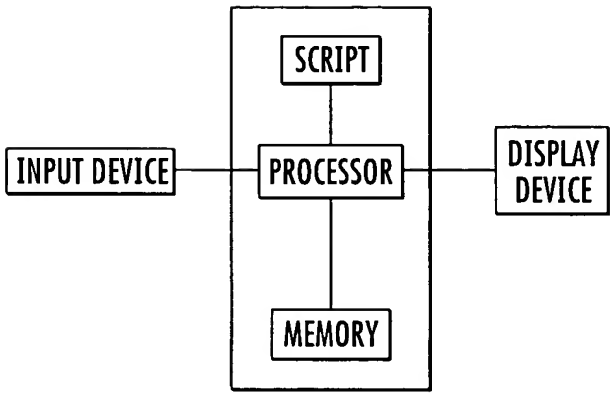
SCRIPT
INPUT DEVICE
PROCESSOR
DISPLAY DEVICE
MEMORY

FIG. 8

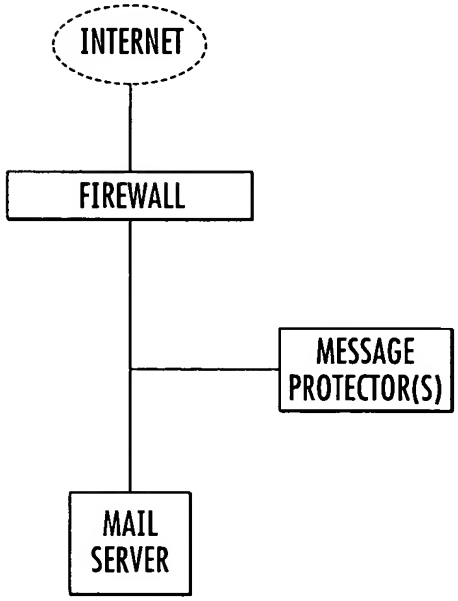
INTERNET
FIREWALL
MESSAGE PROTECTOR(S)
MAIL SERVER

FIG. 9

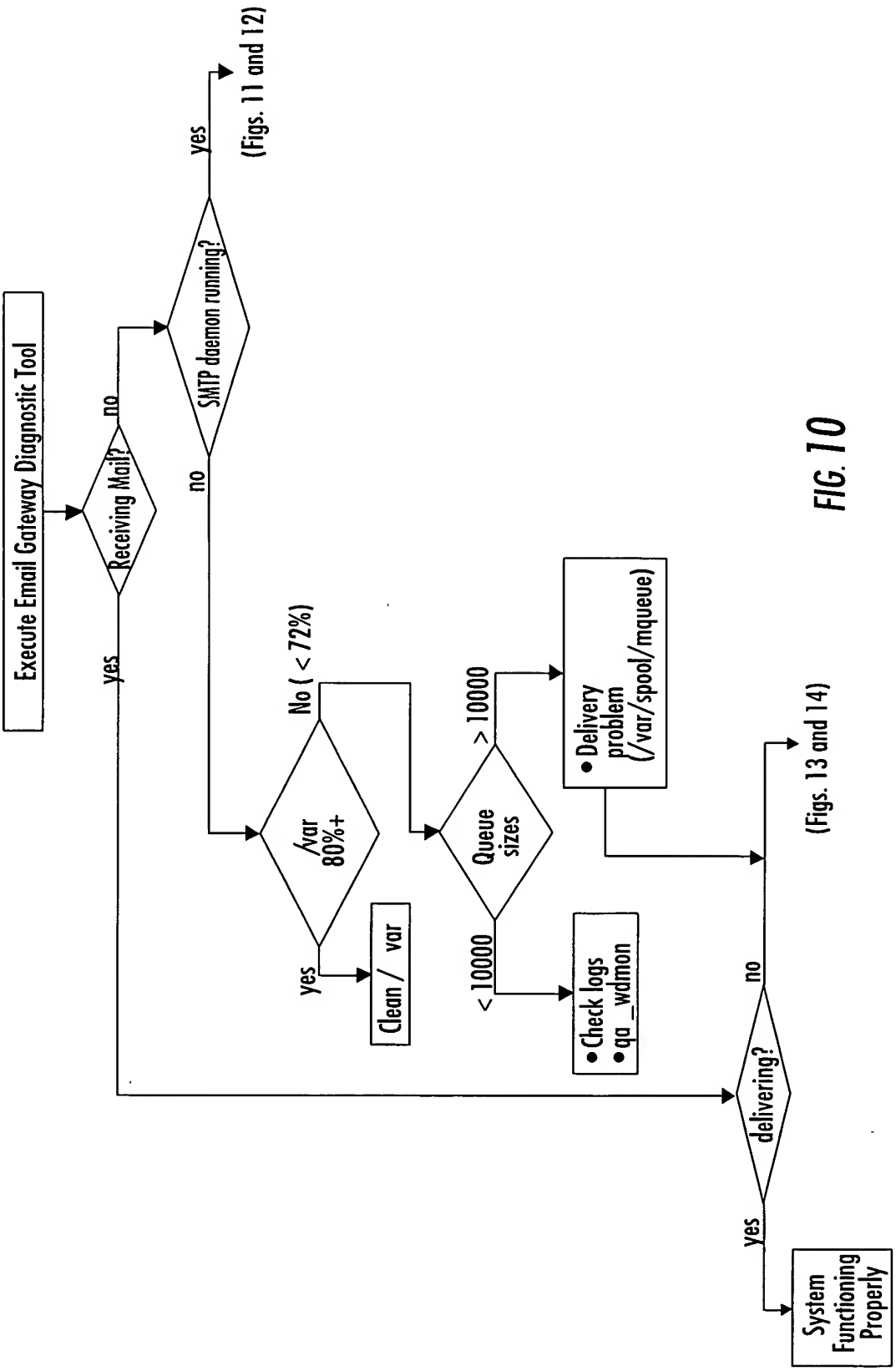
Execute Email Gateway Diagnostic Tool
Receiving Mail?
yes
no
SMTP daemon running?
yes
(Figs. 11 and 12)
no
/var 80%+
No (< 72%)
yes
Clean / var
Queue sizes
> 10000
• Delivery problem (/var/spool/mqueue)
< 10000
• Check logs
• qa_wdmon
delivering?
no
(Figs. 13 and 14)
yes
System Functioning Properly

FIG. 10

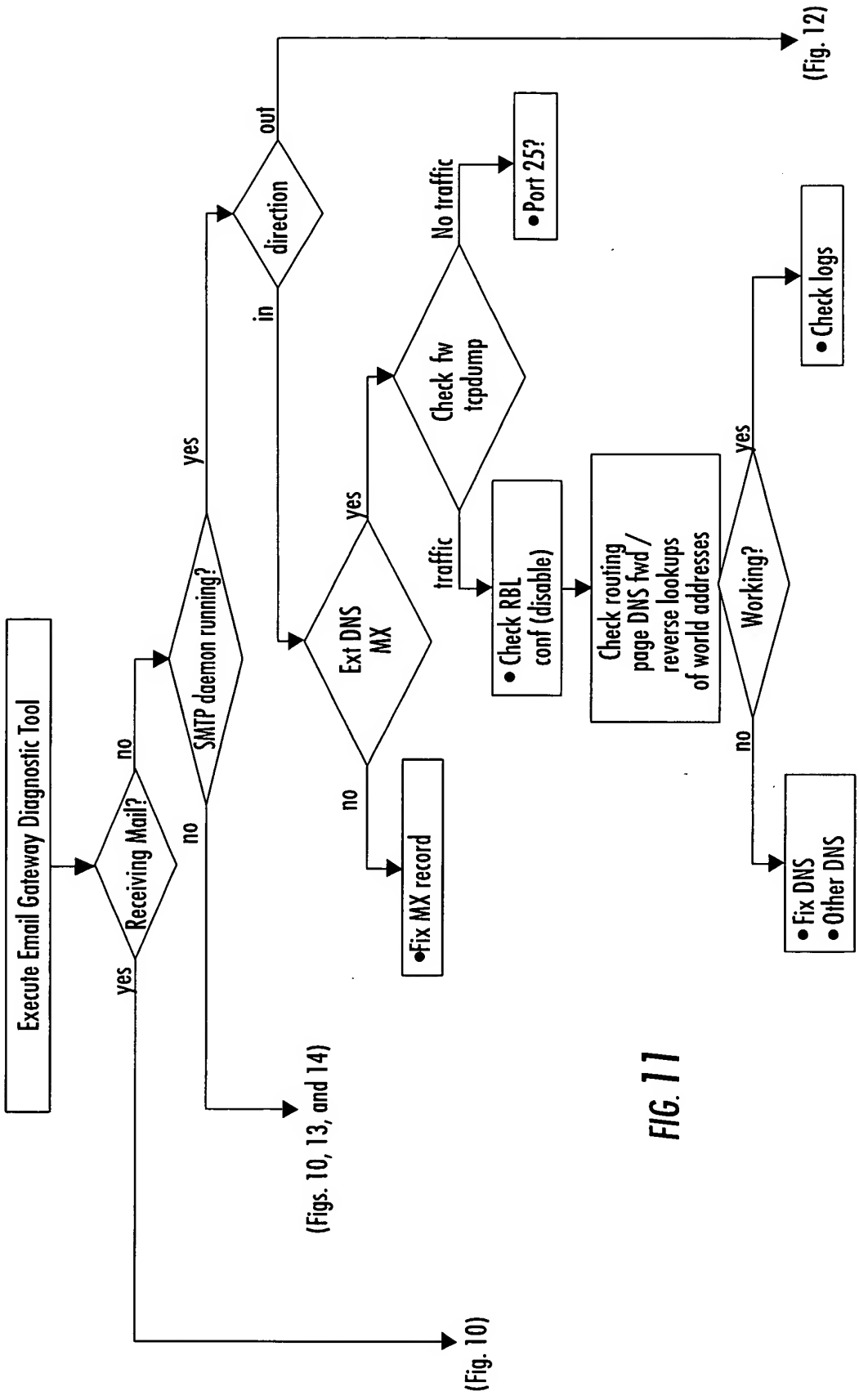
Execute Email Gateway Diagnostic Tool
Receiving Mail?
yes
no
SMTP daemon running?
yes
no
direction
out
in
(Fig. 12)
(Figs. 10, 13, and 14)
(Fig. 10)
Ext DNS MX
yes
no
•Fix MX record
Check fw tcpdump
No traffic
traffic
• Port 25?
• Check RBL conf (disable)
Check routing page DNS fwd / reverse lookups of world addresses
Working?
yes
no
• Check logs
• Fix DNS
• Other DNS

FIG. 11

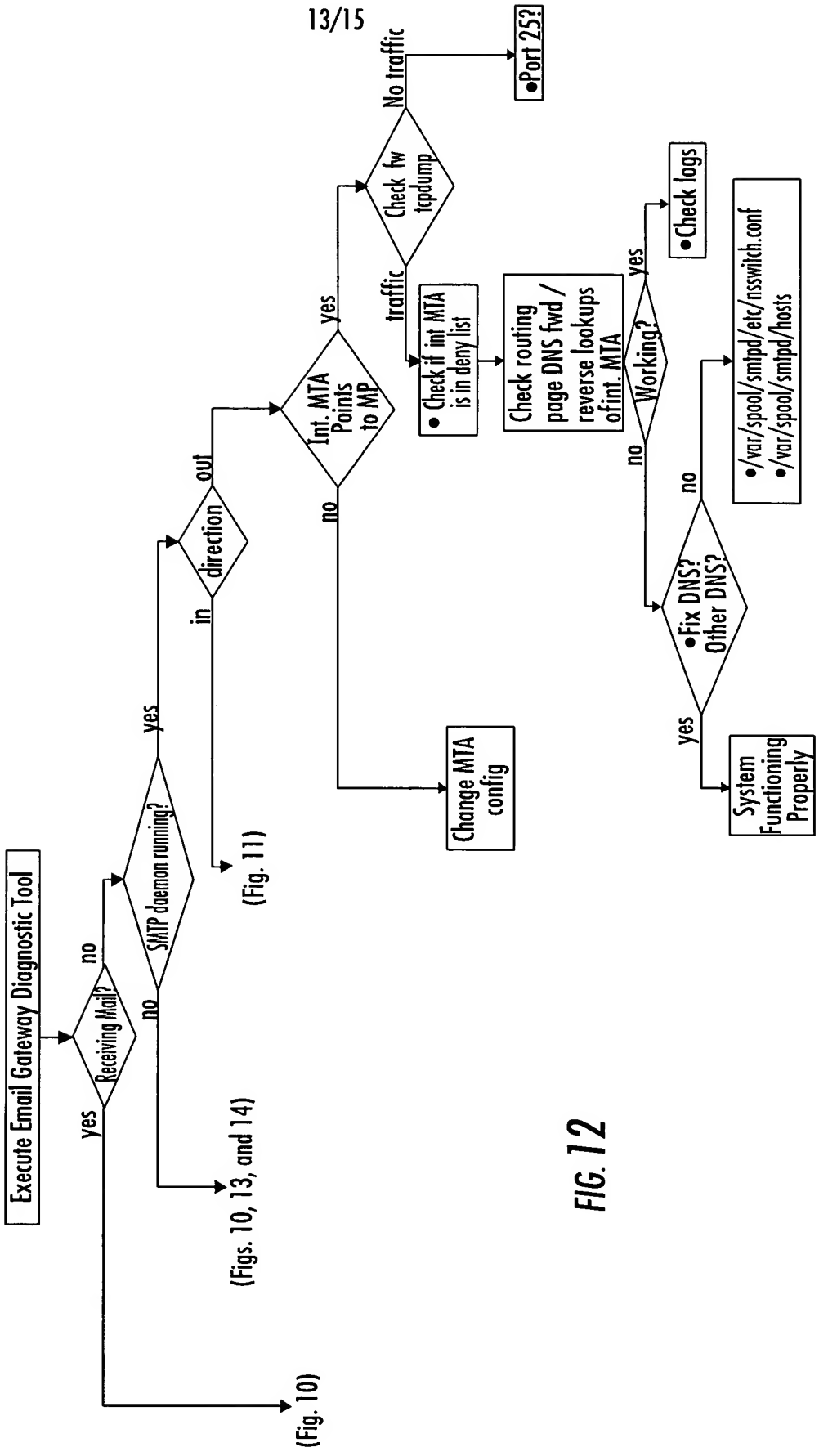
Execute Email Gateway Diagnostic Tool
Receiving Mail?
yes
no
(Fig. 10)
SMTP daemon running?
yes
no
(Figs. 10, 13, and 14)
direction
in
out
(Fig. 11)
Int. MTA Points to MP
yes
no
Change MTA config
Check fw tcpdump
No traffic
traffic
•Port 25?
• Check if int MTA is in deny list
Check routing page DNS fwd / reverse lookups of int. MTA
Working?
yes
no
•Check logs
•Fix DNS? Other DNS?
yes
no
System Functioning Properly
•/var/spool/smtpd/etc/nsswitch.conf
•/var/spool/smtpd/hosts

FIG. 12

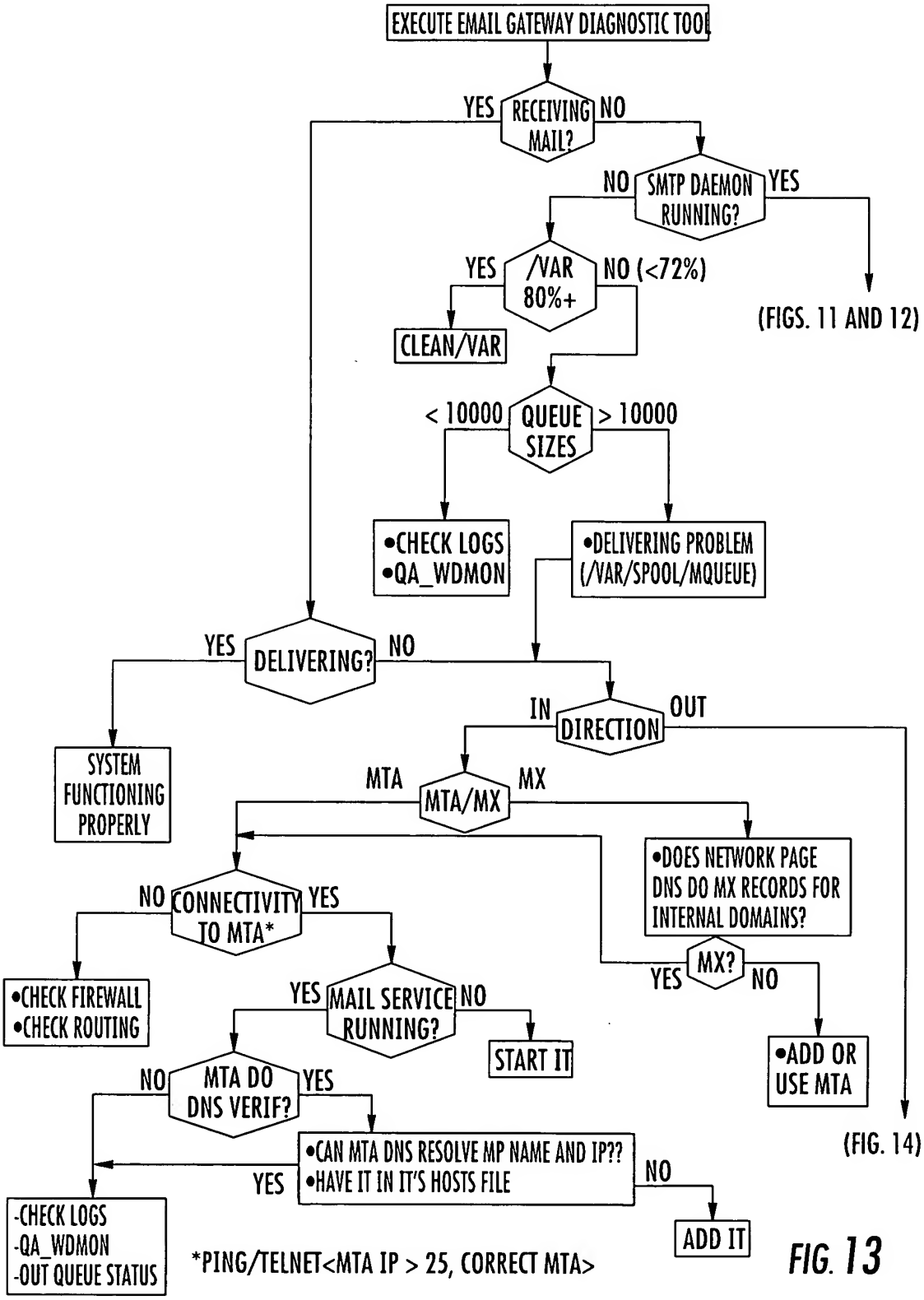
EXECUTE EMAIL GATEWAY DIAGNOSTIC TOOL
RECEIVING MAIL?
YES
NO
SMTP DAEMON RUNNING?
NO
YES
/VAR 80%+
YES
NO (<72%)
CLEAN/VAR
(FIGS. 11 AND 12)
QUEUE SIZES
< 10000
> 10000
•CHECK LOGS
•QA_WDMON
•DELIVERING PROBLEM (/VAR/SPOOL/MQUEUE)
DELIVERING?
YES
NO
SYSTEM FUNCTIONING PROPERLY
DIRECTION
IN
OUT
MTA/MX
MTA
MX
•DOES NETWORK PAGE DNS DO MX RECORDS FOR INTERNAL DOMAINS?
MX?
YES
NO
•ADD OR USE MTA
CONNECTIVITY TO MTA*
NO
YES
•CHECK FIREWALL
•CHECK ROUTING
MAIL SERVICE RUNNING?
YES
NO
START IT
MTA DO DNS VERIF?
NO
YES
•CAN MTA DNS RESOLVE MP NAME AND IP??
•HAVE IT IN IT'S HOSTS FILE
YES
NO
ADD IT
-CHECK LOGS
-QA_WDMON
-OUT QUEUE STATUS
*PING/TELNET<MTA IP > 25, CORRECT MTA>
(FIG. 14)

FIG. 13

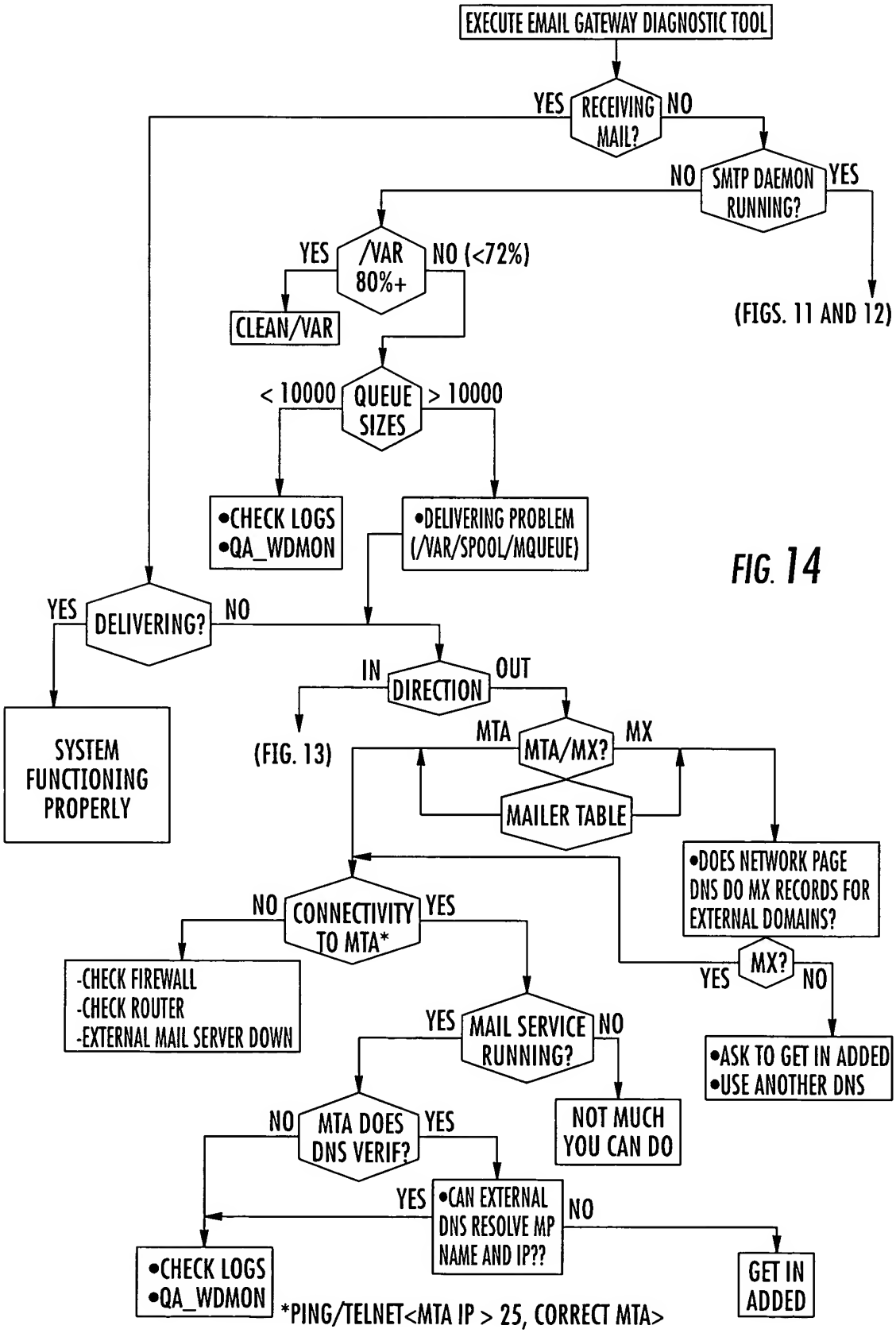
EXECUTE EMAIL GATEWAY DIAGNOSTIC TOOL
RECEIVING MAIL?
YES
NO
SMTP DAEMON RUNNING?
NO
YES
(FIGS. 11 AND 12)
/VAR 80%+
YES
NO (<72%)
CLEAN/VAR
QUEUE SIZES
< 10000
> 10000
•CHECK LOGS
•QA_WDMON
•DELIVERING PROBLEM (/VAR/SPOOL/MQUEUE)
DELIVERING?
YES
NO
SYSTEM FUNCTIONING PROPERLY
DIRECTION
IN
OUT
(FIG. 13)
MTA/MX?
MTA
MX
MAILER TABLE
•DOES NETWORK PAGE DNS DO MX RECORDS FOR EXTERNAL DOMAINS?
MX?
YES
NO
•ASK TO GET IN ADDED
•USE ANOTHER DNS
CONNECTIVITY TO MTA*
NO
YES
-CHECK FIREWALL
-CHECK ROUTER
-EXTERNAL MAIL SERVER DOWN
MAIL SERVICE RUNNING?
YES
NO
NOT MUCH YOU CAN DO
MTA DOES DNS VERIF?
NO
YES
•CAN EXTERNAL DNS RESOLVE MP NAME AND IP??
YES
NO
•CHECK LOGS
•QA_WDMON
GET IN ADDED
*PING/TELNET<MTA IP > 25, CORRECT MTA>

FIG. 14